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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,466	06/26/2003	Young-Hoon Kim	5000-1-376	6491
33942	7590	07/30/2004	EXAMINER	
CHA & REITER, LLC 210 ROUTE 4 EAST STE 103 PARAMUS, NJ 07652			WONG, ERIC K	
			ART UNIT	PAPER NUMBER
			2883	

DATE MAILED: 07/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/607,466

Applicant(s)

KIM ET AL.

Examiner

Eric Wong

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to <sup>amendment</sup> communication(s) filed on 21 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-9 is/are allowed.
- 6) ☒ Claim(s) 1-6 and 10-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/21/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to the rejection(s) of claim(s) 1 and 10 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of United States Patent Number 6,563,988 to McGreer.

### ***Drawings***

2. The drawings received on 6/21/04 overcome the objections set forth in the previous office action and are accepted by the Examiner.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-5, and 10-14 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent Number 6,563,988 to McGreer.

As to claims 1 and 4, McGreer discloses in figure 8, a wavelength division multiplexer/demultiplexer comprising:

- A first sub-waveguide having a width that gradually increases in a progressing direction of an optical signal such that, starting at an input of the sub-waveguide and with the gradual increase, tapering of the sub-waveguide is directed inwardly in a concave manner; and

- A second sub-waveguide continuously joined to the first sub-waveguide, having a predetermined shape and a width that linearly decreases in the progressing direction of the optical signal passing through the first sub-waveguide.

As to claim 2, the apparatus includes a grating (abstract).

As to claim 3, the first sub-waveguide has a parabolic horn shape.

As to claim 5, the second sub-waveguide has a parabolic horn shape.

As to claims 10-14, the wavelength division multiplexer/demultiplexer is used in a PLC having an arrayed waveguide grating and a first and second sub-waveguide continuously joined where the first waveguide has a shape that gradually increases and where the second has a shape that gradually decreases (figure 3, abstract). The inputs and outputs of the PLC are parallel and centered on the arrayed waveguide grating.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over McGreer as applied to claim 1 above, and further in view of applicant's disclosure of prior art.

McGreer discloses a wavelength division multiplexer/demultiplexer wherein a shape of the first sub-waveguide is gradually increasing in shape and a second sub-waveguide gradually decreasing in shape, but fails to explicitly disclose or reasonably suggest the shape defined by the equation as claimed.

Applicant discloses in the disclosure of prior art in equation 2, the equation as claimed in claim 6 and arrayed waveguide gratings (AWG).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the equation and AWG supplied by Applicant's disclosure of prior art in order to supply a flat field profile and to increase the bandwidth of an optical communications line.

#### ***Allowable Subject Matter***

7. Claims 7-9 are allowable over the prior art of record because the latter, either alone or in combination, does not disclose nor render obvious a wavelength division multiplexer/demultiplexer having a second sub-waveguide with a shape as defined by equation 9 supplied by applicant in combination with the rest of the claimed limitations. Claims 8-9 are allowed by virtue of dependency.

#### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. United States Patent Number 6,049,644 to Dragone for a arrayed waveguide grating with an input having increasing and decreasing shapes.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Wong whose telephone number is 571-272-2363. The examiner can normally be reached on Monday through Friday, 830AM - 430PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on 571-272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



EW



Brian Healy  
Primary Examiner